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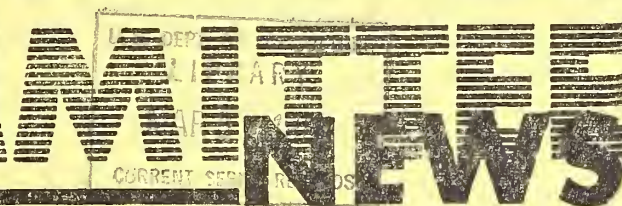
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# NUTRITION

For exchange of  
information on  
nutrition education and  
school lunch activities



U. S. DEPARTMENT OF AGRICULTURE, Washington, D. C.

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## NUTRITION ACTIVITIES PROMOTE DENTAL HEALTH

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Dear Readers:

Thank you for your response to our request for information concerning nutrition activities related to dental health. Your willingness to share your experience with others has made this report possible. It is evident from your communications that many groups are interested, working, and achieving encouraging results.

tion Council (Dr. Mellion is chairman), they have published both scientific and popular articles. These articles present good information on nutrition and dental health along with implications for practical application.

### *"Nutrition and Dentistry, A Two-Way Street"*

This article by the Mellions (Connecticut Medicine, March 1960) emphasizes the implications for dentists, physicians, and related health workers. The authors, staunch supporters of a team approach to public health problems, believe each team member should understand the objectives, procedures, and problems of other health workers to insure effective overall results.

For example, if a better understanding of dental health existed, some health workers would not persist in rewarding children with concentrated sweet foods for coming to the clinic or office. They would select treats, if any, with greater care.

The authors indicate that the purpose of dentistry is to help people keep their teeth and the surrounding tissue healthy. This is important for digestion, speech, and appearance.

Good nutrition is as important to the maintenance of oral cavity tissues as to any other body tissue, and besides there are these special considerations:

1. Although the causes of dental caries are not completely understood, the intake of concentrated sweets and other highly-refined carbohydrate foods seems implicated. Therefore, the establishment, particularly among children, of desirable food practices along with good habits of oral hygiene would seem to be important to the control of caries.

2. Physicians and dentists should be alert to note and investigate changes in the soft tissues of the mouth to prevent, if possible, serious dental disease.

3. Digestion begins in the oral cavity; therefore, the digestion of a diversified diet depends on having enough

Good nutrition and a good daily diet are essential to dental health. They play vital roles in (1) the formation of good teeth in infants and children; (2) the maintenance of healthy teeth and surrounding tissue in children and adults (particularly expectant mothers); and (3) the control of dental caries.

Some dentists not only advise their patients on desirable food practices but cooperate with nutritionists and other health workers in extending this advice to large groups of people.

For example, articles on nutrition and dental health have appeared in both professional and popular publications; many community programs have been initiated to promote dental health; and programs of nutrition education are now underway in some schools.

In this issue of NCN, we report the work being done by (1) a dentist and a dietitian; (2) nutritionists in a State health department; and (3) educational leaders of a religious group.

### DENTIST AND DIETITIAN WORK TOGETHER

The work of Dr. Gilbert LeVine Mellion and his wife, Ruth, of Rocky Hill, Connecticut, is a good example of the contribution that a dentist and a dietitian can make.

In addition to their regular professional duties and work in such community organizations as the Connecticut Nutri-



sound teeth for proper mastication and on being able to chew comfortably.

4. Painful or insufficient teeth often cause patients to eat a poor selection of food. Inadequate amounts of proteins, vitamins A, C, and riboflavin will interfere with the normal healing of tissue. This is of particular significance when extensive oral surgery is indicated.

### **"Food and Dental Health"**

Another article, published in the magazine section of a local newspaper (Hartford Courant Magazine, May 5, 1957), presents similar information in simple language. This popular article, directed to mothers of young children and to mothers-to-be, is illustrated with interesting and practical snack and party foods.

Attention is given to the importance of good nutrition during pregnancy—particularly in the formation of strong teeth for the child and in the maintenance of the mother's teeth.

The importance of preventing dental disease is also emphasized. The authors indicate that even though it is possible to get dentures that are attractive and natural looking, these are really a poor substitute for natural teeth when it comes to chewing. For example, most individuals can exert a force of about 200 pounds with natural teeth as compared to only 35 pounds with full upper and lower dentures.

Choosing snacks or party foods seems to be an area where help is particularly needed. Snacks should include, along with other low-carbohydrate foods, such raw foods as apples, celery, and carrots. Chewing such foods tends to cleanse the teeth.

To provide mothers with practical suggestions, the authors developed recipes for a variety of wholesome snack and party foods. Foods of different colors and textures were used to construct objects and animals familiar to young children.

Some suggestions for low-carbohydrate party foods were given as follows:

1. *Orange sailboats.* Cut orange or tangerine into sections. Use toothpick for mast; put child's name on small piece of paper for a sail.
2. *Pear banjo.* Slice fresh pear lengthwise leaving stem on. Hollow out center core section. Place thin pretzel sticks across for strings.
3. *Cinnamon animals.* Cut raisin bread into animal shapes. Toast and sprinkle lightly with cinnamon. Use bits of dried apricot for eyes.
4. *Apple sandwich.* Core and cut apple into 1/2 inch slices. Use sliced American cheese for filling; place apple top and bottom.

5. *Gelatin baskets.* Use empty orange or grapefruit halves for containers. Fill with fruit flavored gelatin. Chopped fruit may be added.

The children served these party snacks found them interesting and tasty and apparently did not miss the concentrated sweets generally served on such occasions.

### **PUBLIC HEALTH NUTRITIONISTS—INDIANA**

For a number of years, the nutrition staff of the Indiana State Board of Health has cooperated with the board's Division of Dental Health in school, community, and professional education programs to improve dental health through good nutrition.

*In-service education for teachers.*—The growing interest of Indiana educators in nutrition and dental health and in promoting good food practices among school children gave the nutrition staff an opportunity to initiate in-service nutrition education for teachers.

In developing an appropriate program, nutritionists used the interest of school personnel in dental health as a starting point. The resulting overall program, however, closely resembles in-service nutrition education courses offered to teachers elsewhere.

*A typical meeting.*—A team of public health workers, consisting of a dentist or dental hygienist, a nutritionist, and a health educator, works with interested administrators and teachers of an entire school system. Meetings are 90 minutes long and are customarily held after school at some central location.

Participants are served a snack on arrival. This practice helps teachers relax after a day in the classroom. It also provides an opportunity to demonstrate snack foods, low in refined carbohydrates, which promote good dental health.

Snacks include fruits—apple quarters, orange sections, and pineapple slices; raw vegetables—cauliflower flowerettes, celery stuffed with cheese or peanut butter, carrot sticks, green pepper rings, and raw turnip slices; and beverages—milk, and unsweetened fruit punch.

A dentist then explains the important role of the classroom teacher in promoting good dental health among school-age children.

Following this general session, teachers meet in two groups—(1) teachers of grades 1 through 6 and (2) teachers of grades 7 through 12. A nutritionist and a health educator present information, materials, methods, and demonstrations appropriate to specific grade levels.

*Guidelines.*—Suggestions are made in the meetings for planning and conducting nutrition education activities.

• The findings of a simple food habit survey, conducted and interpreted with the help of a nutritionist,

provide direction for planning classroom activities to meet specific needs.

- Nutrition can be included in many areas of learning such as language arts, social studies, mathematics, science, health, and home economics.

- Primary grade (1 through 3) teachers are urged to help children learn to eat and enjoy a wide variety of foods that make up an adequate diet. It is wise to stress foods rather than nutrients.

- Intermediate grade (4 through 6) children should learn that the kind and amount of food eaten makes a difference in the health of individuals.

- Older youngsters (grades 7 through 12) often appreciate a scientific approach. Many students, especially teen-age girls, are also interested in the relationship between good nutrition and personal appearance.

- The school lunch and special milk programs provide repeated experience with desirable practices and can often serve as a springboard for classroom activities.

- Teaching aids, including such pamphlets as "Nutrition and Dental Health," American Dental Association, and "Smackin' Good Snacks," Indiana State Board of Health, as well as posters, film strips, and films, are available. Lists of suitable materials and directions for obtaining them are provided.

**Results.**—Teachers in numerous schools now emphasize nutrition in a variety of class activities, such as tasting parties, animal feeding projects, trips to local markets, and campaigns for better breakfasts.

For example, one first grade class had a fresh vegetable salad party. The children learned to know a variety of fresh vegetables by seeing, smelling, and tasting them. This proved a significant experience. Some youngsters became acquainted with and tasted important foods that had been unfamiliar to them; while others became interested and tasted vegetables previously rejected. The local press added importance to the activity by reporting the party in the newspaper giving credit to the teacher and her class.

This program, conducted in many school districts in Indiana, was well received. Other school personnel have requested similar presentations.

### **Education for Parents**

**Topical fluoride programs.**—Application of stannous fluoride to the surface of children's teeth is approved and encouraged by many dentists as one means of limiting dental caries. This preventive measure has been made available to large numbers of children (3 to 16 years of age) in Indiana. Local groups (Parent-Teacher Associations, business and professional women's clubs, and sororities), with the approval and guidance of local dental societies

and the assistance of State Board of Health personnel, have planned and organized summer programs for school children. Parents are requested to attend with their children.

**Nutritionists contribute.**—While dental hygienists, under the supervision of local dentists, clean the children's teeth and apply the stannous fluoride solution, the nutritionist meets with groups of parents.

She discusses the relationship between good family food habits and dental health. Posters and exhibits point up the need for wise food selection in planning family meals and between meal snacks. Unsweetened fruit juice, celery, and carrot sticks are served to parents as examples of low-sugar snacks. Children are served fruit juice before the stannous fluoride is applied.

Nutritionists have found many opportunities during these discussions to clear up misinformation about food and to answer questions parents have concerning children's food habits.

### **Professional Education**

In addition to participating in professional meetings of State and local dental societies, public health nutritionists teach nutrition education to students of dental hygiene at the Indiana University Dental School. In-service nutrition education is also provided for newly appointed State Board of Health dental hygienists.

As a member of the Indiana Nutrition Council, the State Board of Health provided a nutritionist to speak at the Indiana Dental Association convention on "Nutrition and Dental Health." Nutrition workers also participated in TV and radio programs, and helped write news stories.

## **SEVENTH-DAY ADVENTIST SCHOOL NUTRITION PROGRAM**

The philosophy of the Seventh-day Adventist church places a strong emphasis on healthful living. Health education is taught in all church administered schools—elementary, secondary, and those of higher education.

### **Dental Problems Discovered**

In 1954, a study was made, directed by the staff of the College of Medical Evangelists School of Dentistry, to discover the incidence of dental disease among freshmen students in three church schools—dentistry, medicine, and nursing.

A D.M.F. (D-decayed; M-missing; F-filled) count was taken and compared with similar counts made by many U. S. colleges and universities. The Seventh-day Adventist freshmen had the highest dental decay rate of any comparable group.

The College of Medical Evangelists (Loma Linda, Cali-



fornia) is attended by students from all over North America since it is the only such college operated by the church in the U. S. and Canada. Therefore, it seemed possible that serious dental problems existed among Adventist youth who were not attending one of the three schools studied.

## Action Taken

*Survey findings publicized.*—The results of the study at Loma Linda, California, were brought to the attention of the entire church body. These findings and their implication were discussed at conventions of school teachers, in parent-teacher meetings, at educational conferences, and in the churches. Articles in the weekly Adventist paper, and reports in the monthly bulletin "School Health," which is distributed to teachers, also reported on the findings.

*Research extended.*—Surveys in several geographic areas revealed a high incidence of dental caries among younger groups of school children.

*Health education methods studied.*—Faculty members of the 72 boarding academies (secondary schools) met and discussed the problem. The curriculum and methods of health education were re-examined, evaluated, and modified to meet the dental needs of students. It was also recognized that positive education programs must be extended to elementary schools.

*Nutrition emphasized.*—The educational leaders recognized the need for a good daily diet as well as good oral hygiene if improved dental health was to result. Nutrition was included in the school curriculum at all levels.

In 1955, the School of Dentistry prepared a film "Diet Did It," as an aid to teaching. It was a 12-minute movie illustrating the effects of diet on dental decay, prepared for use in the upper elementary grades. However, it proved to be equally well received by secondary school students and parents.

School feeding programs were improved. Workshops, conducted for school food service directors, emphasized selection of foods to provide tasty, attractive, nutritionally good meals for students. These workshops were well attended—90 per cent of those employed in Adventist schools participated.

Changes were made in the foods offered for sale to students. Carbonated beverages were no longer available on campuses and many schools curtailed the sale of highly concentrated sweets.

The principles of good food selection and preparation were taught to adult classes held regularly in churches.

## Results of Later Studies

Surveys, made from 4 to 6 years after the Loma Linda study sparked a widespread educational effort, revealed surprisingly low dental decay rates among Adventist school children in many localities.

For example, when the Colorado State Department of Health made a routine post-fluoridation study in Grand Junction (Colo.), the 75 students in the town's only Adventist school had the lowest dental decay rate in town.

The director of Special Health Services, Colorado State Department of Health, then made a study in two additional cities. The results, published in the "Bulletin of Public Health Dentistry," November 1958, revealed that in a comparative study of several parochial and public elementary schools in Denver and Boulder, Adventist youngsters had the lowest dental decay rates.

In 1959, similar findings were reported in Tennessee, Indiana, North Dakota, Wisconsin, Michigan, Maryland, Massachusetts, and Oklahoma. These studies were a part of the program of the National Institute of Dental Research.

Data are now being gathered to show whether dental decay rates are lower among Adventist children regardless of geographic distribution.

*Further research initiated.*—Studies are now underway in Colorado to learn the extent to which nutrition and habits of oral cleanliness influenced dental decay rate.

Parents have responded to a questionnaire designed to reveal the dietary habits of their children, the amount of dental care children receive, and parents' sources of information concerning dental health.

Responses revealed the parents' opinion of their children's dietary habits. Research workers are now concerned with learning the children's opinion of their own food practices before making generalizations.

Parents also emphasized the importance of dentists and teachers (in that order) as sources of sound information on nutrition and dental health.

Church leaders believe that the continuing program of health instruction, provided children in schools, and parents in adult classes, is being accepted by the parishioners.



Growth Through Agricultural Progress